

## 2.0 Proposed Action and Alternatives

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The US Bureau of Land Management (BLM) study team has developed a reasonable range of alternatives for the proposed project in two stages of planning and design. Initially, the study team developed a range of alternatives at a programmatic level of detail for the Red Rock Canyon National Conservation Area (RRCNCA) 35-mile multi-use trail system through the State Route (SR)-159 Corridor Trail Feasibility planning process and Programmatic Environmental Assessment (PEA). The team then developed alternatives for Zone 2 at a site-specific design level of detail for this environmental assessment (EA) through a series of site-specific planning and design studies. The trail alignment and design elements of the Proposed Action for Zone 2 were refined from those evaluated in the PEA.

Key considerations that shaped the development of the Proposed Action included

- Providing a safe alternative for recreationists (bicyclists, runners, and hikers) using SR-159
- Creating a quality recreation experience for trail users
- Minimizing impacts on RRCNCA resources
- Establishing suitable wash crossings where seasonal flash flooding occurs

The trail corridor developed through the PEA planning process was divided into five zones. Because of the length and cost of the proposed trail system, it will be implemented in phases. BLM has determined that the first phase of implementation will be Zone 2, and the second phase will include Zones 1 and 3. Phasing for the remaining portion of the proposed corridor, Zones 4 and 5, has not been established. For this EA, the term Zone 2 will be used rather than any further reference to phases.

This chapter describes the Proposed Action and the No Action Alternative, scope of analysis, other alternatives considered but not analyzed, and conformance to the *Resource Management Plan* (RMP).

### 2.1 Description of the Proposed Action

This section describes five elements of the Proposed Action, including:

- Who – BLM’s role and decision-making authority
- What – Elements of the proposed trail system
- Where – Location of the Proposed Action
- How – Construction activities and measures to avoid environmental impacts
- When – Implementation timeframe

#### 2.1.1 BLM’s Role and Decision Making Authority

BLM established the purpose and need and Proposed Action for a comprehensive multi-use trail system through the PEA process and guided this site-specific EA for Zone 2. The BLM team evaluated alternatives for the alignment and created the site-specific design for the trail system. The trail is located entirely on BLM land within the RRCNCA. BLM is the decision maker to recommend and authorize the Proposed Action.

#### 2.1.2 Elements of the Proposed Trail

This section describes the design features and mitigation for the Zone 2 Trail, trailheads, and overlooks. The hiker/biker trail developed through the SR-159 corridor would serve as a trail “spine” that connects a larger network of trails and trailheads, some existing and some proposed. **Figure 2-1** illustrates the location of the proposed trail elements. **Table 2-1** summarizes the elements of the Proposed Action and No Action Alternative. Improvements are proposed for two trailheads that would be accessed by SR-159 and provide parking and access to the proposed trail. Of the three proposed overlooks, one would be accessible by both trailhead parking and the trail, and two would be accessible only by the trail.

**Figure 2-1. Zone 2 Trail Site Plan**

Table 2-1. Summary of Trail Design Elements by Alternative

| Trail Design Elements                                   | Proposed Action  | No Action     |
|---|--|---------------|
| <b>Multi-Use Trail</b>                                  |  |               |
| Trail Termini and Alignment                             | <p><b>Northern trail terminus</b></p> <ul style="list-style-type: none"> <li>• 13-mile Scenic Drive entrance and</li> <li>• Visitor Center entrance and exit roads</li> </ul> <p><b>Southern trail terminus</b></p> <ul style="list-style-type: none"> <li>• 13-mile Scenic Drive exit</li> </ul> <p>Trail alignment would follow the contours of the terrain and provide a varied experience of curves and trail grades. The trail would be located entirely outside the SR-159 Nevada Department of Transportation (NDOT) right-of-way (ROW). BLM has consulted with NDOT extensively on the design of the proposed trail alignment that would be within the NDOT ROW to ensure that the safety features for traffic meet all current standards.</p> | None existing |
| Trail Length  | 3.1 miles from 13-mile Scenic Drive entrance to 13-mile Scenic Drive exit  | None existing |
| Mile Markers  | Three 1-mile markers   | None existing |
| Rest Areas  | 3 rest areas with benches located adjacent to trail in selected locations  | None existing |
| Typical Trail Width Section and Surface Materials       | <p>Combination of concrete and aggregate trail surfaces:</p> <ul style="list-style-type: none"> <li>• 8-foot-wide, 4-inch thick colored concrete trail with 4-inch-thick aggregate base</li> <li>• 4-foot-wide aggregate surface trail</li> <li>• 2-foot aggregate shoulder on the side of the concrete trail surface</li> <li>• 2 percent cross slope</li> </ul>  | None existing |
| Wash Crossing Trail Width Section and Surface Materials | <p>Concrete surface at Red Rock and Lower Pine Creek wash and tributary crossings</p> <ul style="list-style-type: none"> <li>• 10-foot-wide, 4-inch thick colored concrete trail with 4-inch-thick aggregate base</li> <li>• 2-foot-wide colored concrete shoulders</li> <li>• Below grade walls on both sides of the trail for protection from wash flows and flash flooding</li> <li>• 2 percent cross slope</li> </ul>  | None existing |
| Trail Grades  | <p>Trail grades would be in accordance with the United States Access Board's Accessibility Outdoor Recreation Guidelines for trails and recreation on federal lands:</p> <ul style="list-style-type: none"> <li>• 70 percent or 11,000 feet of trail would be at 5 percent grade</li> <li>• 24 percent or 4,000 feet of trail would be from 5 to 8.33 percent grade</li> <li>• 6 percent or 890 feet of trail would be at 10 percent grade</li> </ul>  | None existing |

Table 2-1. Summary of Trail Design Elements by Alternative (Continued)

| Trail Design Features   | Proposed Action  | No Action  |
|---|--|--|
| <b>Trailheads – Provide parking, visitor amenities and trail access</b> |  |  |
| Locations   | <ul style="list-style-type: none"> <li>Expansion and improvements to existing Exit Lot parking, visitor amenities, and trailhead access</li> <li>Expansion and improvements to Vista Lot parking, visitor amenities, overlook and trail access</li> </ul>  | <p>Exit Lot provides equestrian user parking.</p> <p>Vista Lot provides parking for the Vista Overlook.</p>  |
| Access  | <p><b>Existing SR-159 access</b><br/>Any road modifications, such as new turn lanes, would require a ROW permit and final NDOT approval. Portions of the project would be located in the NDOT ROW along SR-159, including the deceleration lane and right turn at the trailheads and a small portion of the Overlook parking lot and trail connection. Please note that NDOT was consulted during the planning and design of SR-159 turning lanes</p> <p><b>Vista Overlook Lot</b></p> <ul style="list-style-type: none"> <li>New right turn and left turn lanes from SR-159</li> </ul> <p><b>13-mile Scenic Drive Exit Lot</b></p> <ul style="list-style-type: none"> <li>New right turn and left turn lanes from SR-159</li> </ul> | <p>SR-159 provides access to existing Exit Lot and Vista Lot.</p>  |
| Road, Trail and other connections                                       | <ul style="list-style-type: none"> <li>13-mile Scenic Drive</li> <li>Equestrian trails</li> </ul>  | <p>Equestrian trails accessed from Exit Lot.</p>   |
| Parking   | <p><b>13-mile Scenic Drive Entrance and Fee Booth Lot</b></p> <ul style="list-style-type: none"> <li>Existing parking</li> </ul> <p><b>Vista Overlook Lot</b></p> <ul style="list-style-type: none"> <li>Asphalt surface car parking – 44 total spaces (4 Americans with Disabilities Act [ADA]-compliant vehicles)</li> </ul> <p><b>13-mile Scenic Drive Exit Lot</b></p> <ul style="list-style-type: none"> <li>Asphalt surface car parking – 19 total spaces (2 ADA-compliant vehicles)</li> <li>Gravel surface equestrian parking – 21 total spaces (A pedestrian zone would separate the car parking lot from the equestrian parking area.)</li> </ul>  | <p>No change to existing parking lot capacity.</p> <p><b>13-mile Scenic Drive Entrance and Fee Booth Lot</b></p> <ul style="list-style-type: none"> <li>50 spaces</li> </ul> <p><b>Vista Overlook Lot</b></p> <ul style="list-style-type: none"> <li>28 existing parking spaces with 4 ADA-compliant vehicles</li> </ul> <p><b>13-mile Scenic Drive Exit Lot</b></p> <ul style="list-style-type: none"> <li>20 equestrian parking spaces (The Exit Lot was built to provide equestrian parking and staging at the north end of the area where equestrians are permitted.)</li> </ul> |

Table 2-1. Summary of Trail Design Elements by Alternative (Continued)

| Trail Design Features                         | Proposed Action  | No Action  |
|---|--|--|
| Shade Shelters                                | Proposed shade shelters at Vista and Exit Lots   | Shaded shelter with interpretive display at Vista Lot          |
| Restroom                                      | Proposed restrooms at Exit and Vista Lots  | Restrooms at Vista Lot   |
| Picnic Area                                   | Proposed at Vista and Exit Lots  | Shaded picnic area with interpretive elements at the Vista Lot |
| Trash   | Proposed at Vista and Exit Lots  | At Vista Lot   |
| Kiosk and Interpretive Design Features        | Proposed at Vista and Exit Lots  | Shaded picnic area with interpretive elements at the Vista Lot |
| Landscape Treatment – Hardscape and Softscape | Proposed at Fee Booth, Vista, and Exit Lots  | At Vista Lot   |
| Helipad                                       | Helipad planned for relocation near Vista Lot  | Existing helipad at Vista Lot                                  |
| <b>Overlooks</b>                              |  |  |
| Access and Parking                            | Vista Overlook: Access from proposed Vista Lot trail head parking and from proposed trail<br>Tortoise Overlook: Access from proposed trail<br>Rattlesnake Overlook: Access from proposed trail | Existing access from SR-159 for Vista Lot                      |
| Kiosk and Interpretive Design Features        | Proposed for both the Tortoise and Rattlesnake overlooks   | Existing Vista Overlook  |
| Landscape treatment – Hardscape and softscape | Softscape proposed for both the Tortoise and Rattlesnake overlooks<br>Hardscape proposed for Vista Overlook  | Existing trees and paving at Vista Overlook                    |

### 2.1.2.1 Trail Design Elements

The Zone 2 Trail would have independent utility, value, and maintenance as a recreation resource within the RRCNCA, even if none of the other four proposed zones of the overall trail system are constructed. The proposed trail would fulfill the purpose and need by providing safe access and a continuous high-quality and diverse recreation experience for users, with trail termini that would connect to the 13-mile Scenic Drive and Visitor Center entirely off SR-159.

Descriptions of the trail design elements are provided below.

- **Trail alignment, access, and connections** – The Zone 2 Trail would be approximately 3.1 miles, starting at the entrance of the 13-mile Scenic Drive and Visitor Center entrance road (approximately 225 feet north of SR-159), and ending at the exit of the 13-mile Scenic Drive, as shown on **Figure 2-1**. Access to the trail would be from SR-159 at the Exit Lot, Vista Lot, and Visitor Center entrance road. The connection of the Zone 2 Trail with the 13-mile Scenic Drive would offer opportunities for an extended trail experience separated from SR-159. Trail mile markers and trail character area threshold markers would guide trail users and provide interpretive information. Three trailside rest area benches would be provided along the trail. The emphasis for this segment is on providing a visitor experience into the RRCNCA from SR-159 that would guide users out into the desert landscape.

While generally parallel to SR-159, the trail alignment would follow the contours of the terrain and provide a varied experience of curves and trail grades. The trail would be located entirely outside the SR-159 NDOT ROW to provide a safe and high-quality recreation experience.

- **Trail width and surface** – The 12-foot-wide proposed trail would accommodate recreational bicyclists, joggers, walkers, and hikers by providing a combination of concrete and aggregate surfaces. The 12-foot-wide trail would consist of an 8-foot-wide concrete surface next to a 4-foot-wide aggregate surface, with one 2-foot aggregate shoulder and a gentle 2 percent cross slope. The concrete trail would be 4 inches thick on 4 inches of aggregate, which would allow for equipment use during plant restoration activities, maintenance, and emergency rescue. The design life of the proposed concrete trail is expected to be approximately 30 years, based on the “Guideline for Design of Pavement Structures” by the American Association of State Highway and Transportation Officials (AASHTO). **Figure 2-2** presents a typical trail cross section.
- **Wash crossings** – The Zone 2 Trail would narrow to a 10-foot-wide trail with a concrete surface where the proposed alignment would cross the Red Rock and Lower Pine Creek washes. Two-foot-wide colored concrete shoulders on either side would provide trail users with a visual delineation of the trail edge within the wash environment. The concrete trail at wash crossing would be 4-inches thick on 4 inches of aggregate, and a gentle 2 percent cross slope, which would allow for equipment use during plant restoration activities, maintenance, and emergency rescue. The trail would be located to minimize the width of desert wash crossings. Below grade walls would be placed on both sides of the trail for protection from wash flows and flash flooding. The length of wash crossings along the trail would be 415 feet at the Pine Creek wash and 860 feet at the Red Rock wash. The remaining 15,000 feet of the 3.1-mile trail would be outside washes. **Figure 2-3** presents a typical trail cross section at wash crossings.
- **Trail grades** – The proposed trail grades, including at wash crossings, would be in accordance with the United States Access Board’s accessibility Outdoor Recreation Guidelines for trails and recreation on federal lands. Seventy percent or 11,500 feet of the alignment would be designed at a grade of 5 percent or less; 24 percent or 4,000 feet of the alignment would be designed at grades between 5 percent and 8.33 percent; and 5.4 percent or 890 feet would be designed at grades from 8.33 percent up to a maximum of 10 percent. The overall elevation change along the entire 3.1-mile trail alignment would be approximately 100 feet.

Figure 2-2. Trail Typical Section

**Figure 2-3. Typical Drainage and Wash Area Trail Section**



### 2.1.2.2 Trailhead Design Features

The proposed trail system would expand two trailheads accessed from SR-159, including the 13-mile Scenic Drive Exit Lot and the Vista Lot. The third trailhead would be at the existing Fee Booth Lot. Access to the Exit and Vista Lots would be from SR-159 and would be improved by new turning lanes within the NDOT ROW to provide safe access into the trailheads.

- **Exit Lot parking and amenities** – The Exit Lot is gravel and currently has the capacity to accommodate about 20 horse trailers. The proposed lot would be expanded to accommodate 19 total car parking spaces on asphalt (including two ADA spaces) and 21 horse trailer parking spaces on gravel. A trail from the horse trailer parking lot would connect with an equestrian trail. Other trailhead amenities proposed for the Exit Lot would include:
  - An entry sign
  - Restroom
  - Picnic area with two tables
  - Small kiosk
  - Trash and recycle containers
  - Landscaping

**Figure 2-4** shows the proposed site plan for the Exit Lot.

- **Vista Lot parking and amenities** – The existing Vista Lot has:
  - 28 car parking spaces, including 4 ADA spaces
  - Additional parallel parking spaces for three cars or one bus
  - Restrooms
  - Shaded picnic area
  - Interpretive elements
  - Outstanding views

The proposed lot would be expanded to accommodate 44 total car parking spaces (including 4 ADA spaces). The existing amenities would be replaced by

- A new a entry sign
- Sited restrooms
- Picnic area with six tables
- Shade shelter
- Trash and recycle containers
- An interpretive sign
- Landscaping

**Figure 2-5** shows the proposed site plan for the Vista Lot.

**Figure 2-4. Exit Lot Site Plan**

Figure 2-5. Vista Lot and Overlook Site Plan

- **Trail access roads** – Three gravel surface roads (two new roads and one existing road) would connect the proposed trail with SR-159 to provide construction and maintenance access, as shown on **Figure 2-1**. They would not be available for public use and would be closed with a gate at the NDOT ROW. Emergency and maintenance vehicles would have a key or the combination for quicker access to situations occurring along the trail.
- **Trail design features to reduce or eliminate adverse effects** – The proposed trail alignment would minimize the width of the Red Rock Canyon and Lower Pine Creek wash crossings. The trail could also be used for emergency access and maintenance by utility vehicles. Design features to protect the trail at wash crossings from damage during flash flooding would include imbedding retaining structures such as cutoff walls into the wash. For a typical trail cross section in a wash crossing, see **Figure 2-3**.

The concrete surface color would use a color pallet of integral color mixes that best match the variable surrounding colors, rather than a single color for the entire length of the trail. The use of this color pallet would provide visual continuity with the surrounding setting to blend the trail in with the desert terrain and almost make the trail disappear.

Shade structures, kiosks, overlooks, and rest areas will be designed in the same manner as the trail surface and would use the same color pallet. The roofs and overhangs will be designed to curve and flow or mimic the hills and contours in the background. From SR-159, you may not notice the structures without a really hard look.

### 2.1.2.3 Overlook Design Features

The existing Vista Overlook would be expanded and two new trail overlooks would be developed, including the Tortoise and the Rattlesnake overlooks. Each overlook would:

- Include a shade shelter and interpretive signs.
- Provide views of the desert panorama, and the red rock formations within the Rainbow and LaMadre Mountain Wilderness Areas.

**Figure 2-6** shows the site plan for the Tortoise Overlook, and **Figure 2-7** shows the site plan for the Rattlesnake Overlook.

Figure 2-6. Tortoise Overlook Site Plan

**Figure 2-7. Rattlesnake Overlook Site Plan**

### 2.1.3 Location of the Proposed Action

The Zone 2 Trail would be located along the SR-159 corridor between the Fee Station and the Exit Lot Trailhead. The trail alignment and design features are shown on **Figure 2-1**. A description of the trail alignment location follows:

- **Red Rock Visitor Center Entrance Road to first wash crossing** – (Initial 800 feet) – The trail would commence at the Visitor Center Entrance Road, approximately 100 feet to the east of the new Red Rock Visitor Center entrance sign. The trail alignment would follow a reclaimed road along the southern edge of the Fee Booth parking area to the Visitor Center Exit Road near one of the best developed stands of Joshua trees along the trail. The trail would then gently curve to the south toward SR-159 to the first wash crossing, 800 feet (0.15 mile) from the Fee Booth parking area, a tributary of the Red Rock Wash.
- **First Wash Crossing to Tortoise Overlook** (800 feet to 0.5 mile) – Turning to the west, the trail would follow the bank of the Red Rock Wash to the Tortoise Overlook, 0.5 mile from the Visitor Center Entrance Road. A loop path connects the overlook to the proposed trail. The Tortoise Overlook would provide a panoramic vista of the Red Rock Wash and the Rainbow Mountains and White Rock Hills to the northwest.
- **Tortoise Overlook to Rattlesnake Overlook** (0.5 mile to 1.25 miles) – The trail alignment would then make an 860-foot crossing of the Red Rock Wash, with views of the 35-foot caliche cliffs along the southern edge of the Red Rock wash. The trail alignment would then curve to the west on a 3.5 percent incline for 500 feet to a 105-foot wash crossing. The alignment would then curve and climb a major ridge for 1,600 feet (0.30 mile) on 4.5 percent to 6 percent grades to the Rattlesnake Overlook, 1.25 miles from the start. The Rattlesnake Overlook is the furthest point from SR-159 and provides a panoramic view of the Red Rock Wash to the northeast, the Rainbow Mountains and White Rock Hills to the west, and the Lower Pine Creek Wash and Vista Overlook to the southwest.
- **Rattlesnake Overlook to Lower Pine Creek Crossing** (1.25 miles to 1.92 miles) – Continuing to the southwest, the alignment would follow a long technical downhill into the Lower Pine Creek Wash. The first 350 feet of the descent would be at 10 percent. The trail grade would provide short flat spots every 50 feet down the 10 percent section to provide relief from the speeds. The profile then would flatten to a more manageable 5.5 percent for 200 feet before gradually stepping steeper to 6.5 percent, 7 percent, and 8 percent over the next 900 feet. The trail alignment would then drop into the Lower Pine Creek Wash on a 10 percent grade for 150 feet. The Lower Pine Creek wash crossing is 390 feet long and would be the last crossing of a major wash, 1.92 miles from the trail start.
- **Lower Pine Creek Crossing to Vista Overlook** (1.92 miles to 2.5 miles) – The alignment would follow a 0.50-mile climb to the Vista Overlook Trailhead, the highest point along the trail. A rest area and bench would be located 1,475 feet (0.28 mile) uphill from the wash. The Vista Overlook would be 2.5 miles from the wash.
- **Vista Overlook to 13-mile Scenic Drive** (2.5 miles to 3.1 miles) – The Vista Overlook would have new picnic tables, shelters, a bathroom, as well as a trail that zigzags up the northwest slope with stairs and serpentine walls. Leaving the Vista Overlook area, the trail would follow the contours around the side of the Vista Overlook hill toward SR-159 with some gentle grades. You will be very close to the NDOT ROW for SR-159 where you start to curve toward the west and go around the new 13-mile Scenic Drive Exit Lot Trailhead. The Exit Lot encompasses almost 4.5 acres that would include paved parking for cars, a separate gravel area for equestrian parking, a bathroom, picnic tables, and informative kiosks. The trail ends at the 13-mile Scenic Drive, 3.1 miles from the Fee Booth area.

## 2.1.4 Construction Activities and Measures to Avoid Environmental Impacts

The proposed construction plan would integrate site preparation and installation of the trail design elements with landscape restoration and best management practices (BMPs). This section includes measures to avoid the short-term (or temporary) and long-term (or permanent) effects of constructing the Proposed Action. The approach for plant salvage and restoration is summarized in **Section 2.1.4.1**, Typical Construction Plan Sequence, and a site specific plan would be prepared prior to construction. Chapter 4, Environmental Effects, describes additional mitigation measures that could reduce or avoid adverse impacts.

Permanent use areas would generally include site grading, drainage modification, and paving for the trail, trailheads, and overlooks, as well as establishing access roads for construction and maintenance. The proposed use of the Exit Lot for construction as a staging area during construction would be developed into a trailhead parking area. Temporary use areas to be restored would include any trail-edge construction staging areas and construction areas required to install the design elements of the Proposed Action. This section describes the following components of the construction plan:

- Typical construction plan sequence
- Construction access and footprint options
- Measures to avoid environmental impacts

The construction plan would be context sensitive and responsive to the environmental sensitivity inherent with the Mojave Desert setting, the RMP, and the R-1 restoration level designation for the RRCNCA. Construction practices would be in compliance with applicable construction standards, codes and regulations, and LEED sustainability practices.

### 2.1.4.1 Typical Construction Plan Sequence

A central construction staging area would be established at the existing Exit Lot and would temporarily use the permanent footprint area planned for the Exit Lot. This 5-acre site would be the central location for construction mobilization and site management. As illustrated on the Exit Lot Construction Staging Area Site Plan, **Figure 2-8**, there is adequate space for a trailer and worker parking, construction equipment, fuel and material storage, construction water source, stockpiling of surface and subsurface soil materials temporally removed from the site, and a small nursery for plant salvage.



Figure 2-8. Exit Lot Construction Staging Area Site Plan

The sequence of typical construction activities includes pre-construction, construction, and post-construction site restoration activities, as well as maintenance, as described below.

### Pre-construction Activities

The general sequence of initial site preparation activities would be conducted in conformance with the site-specific plant salvage and restoration plan, and would include:

- **Conducting rare plant survey** – Before any site preparation and construction, a rare plant survey would be required. The timing of this survey would need to take place during the growing season for yellow two-tone beardtongue, the BLM Sensitive Species that is likely to occur within the project area. Timing and methods of this survey would need to be coordinated early on with the BLM botanist. Upon completion of the rare plant survey, the BLM botanist would review the survey report, after which further mitigation would be developed if needed, such as seed collection.
- **Construction staging area preparation at Exit Lot** – The construction staging area would be established within the area planned for the Exit Lot Trailhead. Site preparation would include:
  - Staking the trailhead area
  - Grading an approximate 5-acre area for construction staging activities
  - Installing a perimeter silt fence for erosion control
  - Temporary security fencing
- **Establishing construction access from SR-159** – Construction access from SR-159 would be established at the Exit Lot staging area and at the access roads shown on **Figure 2-1**.
- **Survey and staking construction zone** – Before the commencement of any ground disturbance, boundary areas that comprise the limits of construction would be clearly marked and flagged to limit the area of potential disturbance.
- **Protective fencing** – Fencing for protecting desert tortoise and wild burros from construction activities would be installed at the staked perimeter of the construction zone in accordance with the Programmatic Biological Opinion Mojave desert tortoise (2006) and BLM guidance for wild burros.
- **Erosion protection** – The *Stormwater Pollution Prevention Plan* (SWPPP) identifies potential pollution sources and BMP controls during pre-construction activities for erosion and sediment control to minimize the disturbed area and protect natural features and soils; material handling; and waste management.
- **Weed survey** – Preconstruction field surveys would be conducted to identify existing weed infestations. Weed control measures would be implemented in accordance with existing regulations and BLM requirements to reduce the spread or proliferation of weeds in the project area. The *Weed Management Plan* provided in **Appendix A** prescribes methods to prevent and control the spread of weeds during and following construction. The weed survey would be performed following the established protocol as described in Appendix 3 of the *BLM LVFO Noxious Weed Plan* (BLM 2006). Ground disturbance would be limited to the minimum area needed for construction in the project site.
- **Plant salvage and surface material removal and stockpiling** – The BLM botanist would review and approve a site-specific plant salvage and restoration plan that would be prepared prior to construction for guidance for each step of the plant salvage, surface material removal, and stockpiling. Preconstruction field surveys would be conducted to determine plant salvage actions for seed collection, perennial shrub, cacti, yucca, and Joshua trees. General approaches to these activities are summarized as follows:

- **Seed collection and plant propagation** – To minimize the spread of exotic annual grasses and weed invasion, the BLM would develop an appropriate seed mix for the project, and seed collection activities would be conducted before beginning construction activities. Standard seed collection protocol would be followed. Sites suitable for seed collection on public lands within the LVFO would be identified and approved in coordination with the local BLM botanist. Only mature seed would be collected, and pounds of seeds required would be based on the approved seed mix and estimate of acres of temporary disturbance for the project.

For compliance with RRCNCA Restoration Area R-1 criteria, some plant propagation would be required. A qualified nursery would propagate a portion of the native seed collected for the project. The live material would be maintained at the nursery for at least one year before being outplanted to the project restoration areas. Material would be free of weeds before being outplanted. The BLM would direct the total number of plants needed and locations where they would be outplanted.

- **Perennial shrub salvage** – Perennial shrubs of approximately 12 to 16 gallon-size would be salvaged. Root dip gel applications would prevent bacterial growth and a minimum of four (4) months growth in containers prior to transplanting. The plants would be adequately maintained for one full year. Every effort would be made to transplant the material at the time of year (early spring or fall) when the plants would be the least likely to experience environmental stress.
- **Cacti, yucca and Joshua tree plant salvage** – All cactus and yucca species (including Joshua trees) within permanent and temporary impact areas would be salvaged and replanted in temporary impact areas or undisturbed portions of the project area. Unless otherwise directed by the BLM botanist, all replanted cacti and yucca would be watered and otherwise maintained for a period of one year. To ensure successful salvage and transplant, all cacti and yucca would be salvaged using a contractor (or other approved by the BLM Botanist) with at least three years experience salvaging and maintaining plant materials in the Mojave or Sonoran Deserts.

All cactus and yucca species would be identified and flagged, including the north orientation for all cacti. All yucca clusters would be counted as separate plants, and a list of quantities and species would be prepared. All succulents (*Opuntia* spp. or *Yucca* spp), irrespective of size, would be salvaged, including cacti, yucca, agave, and cylindropuntia cacti (aka cholla), including *Opuntia echinocarpa*, *O. acanthocarpa*, and *O. ramosissima*. All cholla would also be salvaged.

A secure nursery site of appropriate size would be established to provide ease of care and maintenance for the plant material. All salvaged plant material would be replanted in accordance with the site-specific plant salvage and restoration plan.

- **Biological crust salvage** – Any significant stands of biological crust would be salvaged and placed dry in containers until ready to be placed back on the soil surface.
- **Vertical mulch and rock salvage** – For areas that require clearing and cutting, the vegetation would be stockpiled for use as vertical mulch. This would include any cholla over 3 feet in height. Large rocks and boulders would also be removed to the project stockpiling area. Care would be taken to prevent the disturbance of the natural patina or desert varnish of these rocks.
- **Topsoil salvage and sub-surface soil excavation** – After plant salvage activities, topsoil salvage would involve the removal of the top 6 inches of soil, including rocks and vegetation. This topsoil would be labeled, stockpiled separately, and protected from erosion. Subsoil would then be removed separately to the layer of cemented materials. Subsoil excavation

would be stockpiled separately, not mixed with topsoil. Subsurface removal of naturally cemented subsurface material and caliche would be the final step in excavation for establishing the trail area and construction work area. These materials would stockpiled separately from the topsoil and subsoil.

- **Water requirements** – Pre-construction water requirements would conform to the site-specific plant salvage and restoration plan. Dust control would be conducted in conformance with Clark County dust control requirements, as described in **Section 2.1.4.3**.

### *Summary of Pre-Construction Activities*

Establishing the construction staging area and access work area, and marking the limits of the construction zone would initiate pre-construction activities and define the limits of the construction area. The weed survey would identify areas for treatment and eradication as needed. This would be followed by installation of selected erosion control features, as well as protective fencing for desert tortoise and wild burros. Removal and storage of vegetation, surface features and stripping the topsoil layer would conform to guidance of the site-specific plant salvage and restoration plan.

The general sequence of pre-construction activities would be conducted in conformance with the US Environmental Protection Agency (EPA) approved rules adopted by the Clark County Department of Air Quality and Environmental Management (DAQEM) for fugitive dust control, stormwater management for collecting, settling, treating, and storing pollutants associated with construction equipment, mitigation measures for construction noise, and BMPs for hazardous materials.

Excavation and stockpiling of subsurface soils and rock materials would establish the initial grades for the trail system and temporary construction work areas. Off-site plant storage would use containers and watering in winter, early spring or fall when plant are the least likely to experience environmental stress. To achieve the highest survival rate, it would be advantageous to remove and transplant materials within the project area to their final position. This would require pre-construction sequence planning and a phased approach to the construction, using multiple segments at different levels in the construction sequencing to remove plants from the pre-construction phases and transplant them in the post-construction restoration phase.

### *Equipment*

Typical equipment requirements for pre-construction activities could include:

- |                                |                                   |
|--------------------------------|-----------------------------------|
| ■ Pick-up trucks               | ■ Side-dump truck                 |
| ■ Water truck                  | ■ Concrete trucks                 |
| ■ Front-end loader and backhoe | ■ Tree-spade                      |
| ■ Grader                       | ■ Drills                          |
| ■ Dump truck                   | ■ Blasting equipment/jack hammers |

## Construction Activities

The next phase of construction would involve the installation of the proposed trail, trailheads, and overlooks described in **Section 2.1.2**. The pre-construction activities would establish the excavated project area, with the limits of construction and protective fencing, BMPs, plant salvage, topsoil removal, and subsoil and cemented material excavation. Construction activities would be initiated in the following general sequence of activities listed below:

- **Trail installation** – Installing the proposed trail would be the first stage of construction to establish the “backbone” of the Proposed Action, around which construction of the other design elements of the overall trail plan would follow. The installation activities would generally include following:

- **Stake trail center line and edges** – Staking the trail alignment will set the location and limits of the trail section shown on **Figure 2-4**.
- **Rough grading, trail base preparation, and minor alignment adjustments** – As the rough grading of the trail and trail base preparation proceed, alignment adjustments may occur in response to site-specific terrain features such as rock outcropping.
- **Framing for concrete and aggregate trail materials or slip-form concrete** – At this stage, the path would be made ready for paving, and details on these techniques would be finalized prior to construction.
- **Concrete pouring and finishing** – Concrete would be poured as per ACI specifications for the trail, rest areas, and interpretive sign foundations.
- **Crusher fine trail and aggregate shoulder placement** – Once the concrete portion of the trail is completed, the crusher fine trail surface and aggregate would be placed and compacted.
- **Rattlesnake and Tortoise Overlook grading and aggregate path installation** – The Rattlesnake and Tortoise Overlooks would be developed as a part of the trail construction.
- **Placement of mile-markers, rest areas, and other interpretive trail markers** – Placement of these features may be delayed to avoid conflicts with the post-construction restoration activities.
- **Trailhead and Overlook installation** – Installation would begin with the Vista Trailhead and Overlook. Development of the Exit Lot would follow, after the removal of the construction staging area. The following is a typical sequence to develop each trailhead:
  - Rough grading for car parking areas (Exit Lot and Vista Lot with Vista Overlook)
  - Equestrian parking area with gravel surface (Exit Lot only)
  - Picnic area preparation and placement of planned restrooms, shade structures and tables, and kiosks
  - Landscape features including planting and rock placement
  - Interpretive signage
  - Asphalt paving

#### *Summary of Construction Activities*

The proposed sequence of construction would avoid the risk of disturbance due to “back-tracking” and disturbing installed design features. Each design feature would be constructed in conformance with the BMPs identified in **Section 2.1.4.3**. The erosion BMPs to be used on these slopes would likely be erosion logs and soil retention blankets as shown on **Figure 2-9**. The planned access roads would provide access points to the trail from SR-159 to facilitate construction, and to clean the trail of debris after wash events or to repair the trail or any items along the trail during project maintenance.

#### *Equipment*

Typical equipment requirements for construction activities could include the following:

- Pick-up trucks
- Water truck
- Front-end loader and backhoe
- Grader
- Dump truck
- Side-dump trucks
- Tree-spade

**Figure 2-9. Typical Erosion Control Section**

## Post-Construction Site Restoration Activities

The general sequence of post-construction activities would include:

- **Earthwork – replacement of stockpiled subsurface and surface soils** – Post-construction earthwork would include:
  - Burying subsurface soils (including caliche)
  - Applying surface soils
  - Decompacting terrain

The segregated and stockpiled materials would be replaced back within the footprint in order with the subsurface below the surface soils. Where significant cemented materials and caliche are encountered during the excavation, they would be crushed into fine material before replacing back within the footprint. After recontouring to natural grade and loosening the subsurface soil, surface soils would be replaced over the top of the subsurface materials.

Where any compaction exists, the surface would be scarified, tilled, or harrowed to a depth of 6 inches, or as appropriate. The depth of compaction relief will depend on site-specific conditions. Decompacting and ripping would be conducted in a manner that would avoid “corn rows,” and care would be taken to prevent inverting the soil layers. The surface soil would be redistributed following site recontouring and preparation (decompacting and ripping). Soils would be watered to a depth of 2 inches to prevent erosion. The site would be left adequately rough after surface soil placement to provide micro sites for seed germination and to reduce soil movement. For additional information on soils, refer to Chapter 3, Section 3.14, in the Zone 2 EA.

Replaced surface soil would be left in an unscreened condition in an effort to minimize erosion. Vegetal-based soil binder would be used on any steep stockpile slopes to reduce movement and erosion. Surface soil would not be handled excessively during windy conditions.

- **Rock, vertical mulch, and soil crust** – Soil staining material such as Permeon or Eonite would be applied to rocks to enhance the desert varnish when necessary.
- **Surface and subsurface soil stabilization** – The timing of re-application of crusts is critical for the success of crust recovery. Soil crust salvaged from a site must be re-applied in the late fall to early spring. After the surface soil has been replaced, the salvaged crust would be spread evenly over the surface and watered once per day for three days.
- **Transplanting succulents** – All salvaged plant material would be replanted in a natural pattern to a depth of 18 inches or greater. Mojave yuccas would be replanted in groups of three. All cacti would be planted with the same north orientation as they originally grew ( $\pm 15$  degrees). All small cacti shall be watered thoroughly one time upon being transplanted into the field. All yucca stems would be thoroughly watered initially, and soil moisture retention product such as DriWater would be at the specified rate. Transplanting and maintenance of plant material would be completed such that 80 percent survivorship after one year is achieved.
- **Transplanting shrubs** – Methods for transplanting shrubs would be such that a success rate of at least 80 percent survival after one year is achieved.
- **Seeding** – Harvested seed would be pelletized. Per acre application of pelletized seed would be conducted in conformance to the site-specific plant salvage and restoration plan.
- **Rock and soil staining** – Depending on the soil type, soil and rock staining material (such as Permeon or Eonite) would be applied. The BLM would allow application of non-toxic coloring agents on soil and rocks in RRCNCA to reduce the contrasts created as a result of ground disturbances.

## Draft Environmental Assessment

Signs would be installed at regular intervals in restoration areas to deter vehicular damage to the site.

- **Monitoring** – Monitoring would be based on the site-specific plant salvage and restoration plan to be developed prior to construction. Typically, monitoring activities would be to ensure effective results within five to seven years. Methods would be designed to quantify the level of recovery for the treated sites by comparing the recovery progress with adjacent undisturbed habitat of similar soil and vegetative characteristics.

### *Summary of Post-Construction Activities*

Post-construction activities would focus on site restoration in conformance with the site-specific plant salvage and restoration plan, including the following:

- Stockpiled soil removed during pre-construction would be redistributed within the temporary construction zone.
- Subsurface soil and surface top soil materials would be contoured and scarified, tilled, or harrowed to eliminate compaction and allow effective seeding and planting.
- Side slopes would be graded to blend in with adjacent contours through slope rounding and warping to maintain a natural appearance to the trail side surface alignment for both recreation users and off trail viewers.
- Water would be used to prevent wind erosion during recontouring and decompacting.
- Large rocks, and any salvaged soil crust materials would be re-applied from late fall to early spring and watered.
- All salvaged plant materials would be replanted in natural patterns and groupings, and watered in accordance with the restoration plan.
- Drill seeding or hand broadcast would follow Restoration Area R-1 standards.
- The last stage of planting would be transplanting of shrubs, followed by applications of soil and rock staining using products such as Permeon or Eonite. Compaction during planting would be avoided by using construction mats or low ground pressure vehicles.

### *Equipment*

Typical equipment requirements for post-construction activities could include the following:

- |                    |                                   |
|--------------------|-----------------------------------|
| ■ Pick-up trucks   | ■ Tractors                        |
| ■ Water truck      | ■ Rangeland seed drill            |
| ■ Front-end loader | ■ Plow/ripper/scarifier           |
| ■ Dump truck       | ■ Spray truck (stain application) |
| ■ Tree spade       |                                   |

## Inspections and Maintenance

- **Activities related to construction** – The *SWPPP* outlines procedures for weekly scheduled inspections during construction, and within 24 hours of any rain or snow melt events that create runoff at the construction sites, to ensure BMPs are in place and functioning. Construction debris and trash would be re-established and temporary BMPs would be removed such as silt fences. The site-specific plant salvage and restoration plan would include a detailed inspection and maintenance plan to be followed after construction until site restoration has reached the goals for revegetation.
- **Activities related to trail operation and emergency response** – The BLM would maintain the proposed trail based on guidance from a Trail Operation Plan that would be prepared prior to



public use. Access to the trail for maintenance and emergency response from SR-159 would be available from five locations, including the Visitor Center entrance, the Exit Lot, and 3 intermediate access roads as shown on **Figure 2-1**. Types of activities would include scheduled trailhead facility maintenance, and trail inspections for debris or damage. Following storms, the BLM would inspect the trail for any trail washouts or slope failures. Wash crossings and drainage crossings would be inspected for damage and cleared of debris and sediment following storm events.

#### 2.1.4.2 Trail Construction Access

Implementing the construction activities described previously would require temporary access parallel to the proposed trail for workers and equipment. A temporary 10-foot-wide access area would be created parallel to the proposed trail for the entire 3.1-mile length. The construction access area would be for equipment and be one way. To enhance the efficiency and provide flexibility for construction equipment movement, there would be seven localized one-acre sites, along the trail for topsoil and subsurface stockpiling, and vehicle turning area, as shown on **Figure 2-10**.

Details of the localized stockpile and turning area are illustrated on **Figure 2-11**.

The Exit Lot would also be used for stockpiling and centralizing construction management. The overall construction footprint and surface disturbance would be approximately 21.9 acres, as shown on **Table 2-2**. The typical trail construction access section is illustrated on **Figure 2-12**.

The construction footprint of the Proposed Action would result in temporary disturbance and permanent removal of resources within the RRCNCA. **Table 2-2** identifies the estimated acres of disturbance associated with the Proposed Action.

**Table 2-2. Temporary and Permanent Disturbance**

| Trail System Elements  | Proposed Action Footprint (Acres) |             |
|------------------------|-----------------------------------|-------------|
|                        | Temporary                         | Permanent   |
| Trail <sup>1</sup>     | 18.5                              | 5.8         |
| Exit Lot               | 1.4                               | 2.7         |
| Vista Lot <sup>2</sup> | 2.0                               | 1.6         |
| <b>Total Acres</b>     | <b>21.9</b>                       | <b>10.1</b> |

<sup>1</sup>Trail disturbance area includes the Rattlesnake and Tortoise Overlooks and construction access roads.

<sup>2</sup>Vista Lot disturbance area includes the Vista Overlook.

**Figure 2-10. Trail Construction Access Concept Plan**

**Figure 2-11. Localized Stockpile and Turning Area Detail**

**Figure 2-12. Typical Construction Access Section**

### 2.1.4.3 Construction Mitigation Measures to Avoid Environmental Impacts

#### Air Quality

Construction mitigation measures for air quality would be required to reduce and/or avoid impacts of fugitive dust during construction.

EPA established the National Ambient Air Quality Standards (NAAQS) for criteria pollutant particulate matter less than 10 microns in diameter (PM<sub>10</sub>).

The RRCNCA is located in the Las Vegas airshed. EPA finalized its approval of the Clark County PM<sub>10</sub> Plan as meeting the Clean Air Act (CAA) (1970) requirements for serious PM<sub>10</sub> nonattainment areas. As part of this action, EPA approved a series of rules adopted by the Clark County DAQEM that control fugitive dust sources, including

- Disturbed vacant lots
- Construction sites
- Unpaved roads
- Paved roads
- Unpaved parking lots

Under these rules, any construction activities covering 0.25 acre or more are required to obtain an air quality permit (DAQEM 2008b). The rules are the major control measures relied on in the PM<sub>10</sub> Plan to demonstrate attainment of the health-based standard (EPA 2010a).

In general, the impacts on air quality would be minor, temporary, and short-term in nature. Localized emissions of PM<sub>10</sub> would likely occur as a result of the construction activities involving soil disturbance and movement of construction equipment. The use of water during construction activities and the application of asphalt or concrete for trail cover would reduce potential emissions. See the *Construction Activities Dust Control Handbook, Attachment 2, page 2: Dust Suppressant, Palliative and Surfactant Information, Interim Policy on Dust Palliative Use in Clark County, Nevada, DAQEM* for details of measures applied for conformance with Clark County Air Quality Regulations, especially Section 94: Permitting and Dust Control for Construction Activities.

The Clark County DAQEM has determined that a dust control permit is required for construction of the Zone 2 trail. The contractor performing the actual earthwork would be responsible for obtaining all air quality permits through the Clark County DAQEM. Suppression would be an acceptable construction mitigation measure for air quality. Because of the presence of desert tortoises, only water (with no additives) could be used as dust suppressant. The BLM anticipates water for the project would be obtained from a metered Las Vegas Valley Water District fire hydrant on Charleston Boulevard just outside RRCNCA.

Because the designated use of the trail would not include motorized vehicles, the trail is not likely to cause long-term emissions of particulate matter (PM<sub>10</sub>). Proper maintenance of the trail (removal of loose dirt especially following a storm event) would ensure that PM<sub>10</sub> emissions would be minimized. The BLM will be responsible for maintenance of the trail in accordance with their management directives for any paved roads in the RRCNCA.

Other stipulations may include, but would not be limited to, dust control class. All soil disturbing activity would be managed for fugitive dust using water and other BMPs, as a matter of good environmental stewardship during work and non-work schedules.

### Hazardous Materials and Waste

BLM's management objective is to prevent hazardous materials contamination on public lands and to minimize releases of hazardous materials through compliance with current regulations, including the EPA's National Pollutant Discharge Elimination System (NPDES) permit program. Construction activities would require proper handling of petroleum products for fueling and maintaining the construction equipment.

Construction mitigation measures for hazardous materials and waste are required to reduce and/or avoid impacts from pollutants that might occur in paved parking areas (trailheads) and at staging areas during construction. Typical pollutants include oils, curing compounds, fuel, emergents, and pesticides.

BMPs have been incorporated into the SWPPP to control potential pollution sources for hazardous material handling and waste management during pre-construction, construction, and post-construction. The stormwater management system/drainage would include a method for collecting, settling, treating, and storing pollutants. Some examples of BMPs would include the following:

- Containing waste to be hauled offsite
- Stabilizing staging areas to store materials, fertilizers, chemicals, and so on
- Disposing of concrete washout areas used during construction only
- Conducting spill prevention training

### Water Resources/Quality – Wastewater

Construction mitigation measures for wastewater are required to minimize or eliminate the discharge of construction site sanitary/septic waste. BMPs have been incorporated into the *SWPPP* to control potential pollution sources for wastewater during pre-construction, construction, and post-construction. The stormwater management system/drainage would include dumpster and portable toilet site management practices.

### Stormwater Runoff and Erosion Control

Construction mitigation measures for stormwater runoff and erosion control would be required to reduce and/or avoid impacts on the disturbance areas and protect natural features and soils that might occur during construction.

BMPs have been incorporated into the *SWPPP* to control potential pollution sources for control sediment and erosion caused by storm events. BMPs should be used during all construction phases to reduce impacts from sedimentation and erosion. BMPs may include:

- |                            |  |
|----------------------------|--|
| ■ Berms                    | ■ Sheet mulching                                     |
| ■ Brush barriers           | ■ Silt fences  |
| ■ Check dams               | ■ Vehicle tracking control (VTC) straw-bale barriers |
| ■ Erosion control blankets | ■ Erosion logs                                       |
| ■ Filter strips            | ■ Surface roughening                                 |
| ■ Sandbag barriers         | ■ Diversion channels                                 |
| ■ Sediment basins          |  |

The contractor performing the actual earth moving work would obtain a NPDES General Stormwater Permit for construction. The contractor will be responsible for maintaining compliance with all provisions of the NPDES construction permit.

## Weed Management

According to the BLM (BLM 2011e), a list of standard mitigation protocols would be implemented before, during, and after construction of the Zone 2 trail. The *RRC Zone 2 Multi-use Trail System Project Weed Management Plan* (see **Appendix A**) contains specific information on how to treat any existing or new weed populations (BLM 2011e).

Potential mitigation measures would include:

- Treatments preceding construction to reduce the weed seed bank and population
- Treatments during construction to reduce spreading of the seed bank
- Withholding revegetation efforts for a growth season to ease treatments

Furthermore, there are restrictions associated with spraying herbicides in desert tortoise habitat. If weed populations require spraying, the Zone 2 study area would need to be fenced off to keep the tortoises out. Table 2 of the *Weed Management Plan* provides a list of approved herbicides that are often used in the RRCNCA (see **Appendix A**).

## Plant Salvage and Restoration

A site-specific plant salvage and restoration plan would be developed for this project prior to construction. The purpose of the plant salvage and restoration plan is to restore lands and vegetative cover to conditions as similar as practical to its pre-disturbance conditions following construction of the Proposed Action. This would apply to the construction footprints of the proposed trail, trailheads, and overlooks, as well as any temporary workspaces disturbed during construction.

The short term goals are to:

- Re-establish desert vegetation as quickly as possible to control soil erosion and minimize invasion of species inconsistent with the desired plant community.
- Minimize or mitigate impacts on existing native vegetation and air quality.
- Stockpile, manage, and replace suitable topsoil and/or growth medium.
- Achieve a success rate of 80 percent survival transplanting shrubs, Joshua tree, and other yucca/cacti

The long-term goals are to:

- Promote the long-term maintenance of Nevada's remaining native vegetation communities.
- Restore structure and function on disturbed sites that will eventually lead to the establishment of self-sustaining native plant communities.
- Provide viable habitat (forage, cover, soils, etc.) for wildlife, livestock, and other species appropriate to the site (especially the desert tortoise).
- Minimize visual impacts along the multi-use trail that would detract from the visitor experience.
- Minimize visual contrasts by creating a trail edge that blends in aesthetically with the adjacent desert landscape
- Provide fire resistant qualities to the environment where applicable to meet ecological or public safety objectives.

These goals would be achieved through a sequence of restoration actions consisting of surveying/planning, preconstruction, post-construction, and monitoring. An evaluation of the revegetation measures would be conducted during the operational and maintenance phase of the project.

### 2.1.4.4 Standard Stipulations

The following Standard Stipulations would be implemented as minimization measures for the Proposed Action.

#### Air Quality

Department of Air Quality and Environmental Management (DAQEM) requires a dust control permit for all construction activity of 0.25 acre or greater in the aggregate. Ensure compliance with dust control permit stipulations for the duration of the project.

#### Geology/Mineral Resources/Energy Production

Any excavation that produces mineral materials must be used within the project area or stockpiled onsite for sale by the BLM. If mineral materials are to be stockpiled for sale, a contract would be necessary before the stockpiled mineral materials can leave the area.

#### Hazardous Materials and Waste

Should hazardous materials be spilled or deposited, the Authorized Office for the BLM Red Rock/Sloan Field Office shall be immediately notified. Any cleanup or reporting requirements shall be completed in compliance with all applicable State and Federal laws and regulation.

#### Invasive Species/Weeds

All individuals involved with the Proposed Action are required to enter and leave the site free of vegetation and soil on clothing and equipment.

#### Threatened, Endangered or Candidate Animal Species

Minimization measures for Threatened, Endangered or Candidate Animal Species include:

- A BLM/USFWS-approved biologist would present a tortoise education program to all contractors, foremen, workers, permittees, and other employees or participants involved in the project.
- Construction fencing for the desert tortoise would be provided as needed per BLM standards.
- If weed populations require spraying, spray area would be fenced off to keep the tortoises out.
- Should a desert tortoise enter the project area, all activity shall cease until such time as the animal has left the area of its own accord.
- Workers would be instructed to check underneath all vehicles before moving them as tortoises often take cover underneath parked vehicles.
- A speed limit of 25 mph shall be required for all vehicles travelling on construction access roads.

Additional minimization measures include:

- Work areas will be clearly defined and marked.
- All maintenance equipment/vehicles will be washed/ steam-clean prior to entering the project area to prevent the spread of weeds. Any construction equipment, vehicle, or implement that leaves the project area will be washed/ steam-cleaned prior to re-entering the project area.
- Any fuel or hazardous waste leaks or spills will be contained immediately and cleaned up at the time of occurrence. Contaminated soil will be removed and disposed of at an appropriate facility.
- A litter-control policy will be implemented to minimize predation on tortoises by ravens, coyotes, or other predators drawn to the project area. This policy will include the use of covered, predator-proof trash receptacles, removal of trash from the construction site to the trash receptacles at the end of each workday, and proper disposal of trash in a designated solid waste disposal facility.



- All project areas, including temporary use areas and the overland travel access routes, will be cleared by a qualified biologist before the start of construction or ground disturbance. The site will be surveyed for desert tortoises using survey techniques that provide 100% coverage. During the tortoise active season, the preconstruction clearance will be conducted no more than three days before initiation of construction. During the tortoise inactive season, the preconstruction clearance shall be within five days before work begins. Tortoise burrows found in the construction areas will be searched for resident tortoises, and if no tortoises are found within the burrow, it will be collapsed to prevent re-entry.
- If found, tortoises and/or tortoise nests will be relocated by a qualified tortoise biologist in accordance with USFWS-approved protocol (Desert Tortoise Council 1999). Burrows containing tortoises or nests will be excavated by hand, with hand tools, to allow removal of the tortoise or eggs. If a desert tortoise is encountered and is in imminent danger, it shall be moved out of harm's way and onto adjacent BLM land. If the tortoise cannot be avoided or moved out of harm's way onto BLM land, it shall be placed in a cardboard box or other suitable container and held in a shaded area until the Clark County Desert Tortoise Pick-Up Service or BLM personnel can retrieve the tortoise. Tortoises moved offsite and released into undisturbed habitat on public land will be placed in the shade of a shrub, in a natural unoccupied burrow similar to the one in which it was found, or in an artificially constructed burrow.

### Wild Horse and Burros

Additional stipulations for wild horses and burros are as follows:

- Individuals would not exceed 25 mph speeds throughout the Red Rock Herd Management Area (HMA).
- Individuals should also remain at least 0.25 mile from the water sources in the HMA to prevent unnecessary stress on the animals.
- Individuals would not harass (feed, pet, or chase) wild horses and burros if encountered on or near the construction areas, trails, or equipment parking areas. If individuals do see any wild burros, they should keep a safe distance. Burros are wild animals and can be unpredictable especially during foaling and breeding season.
- Construction fencing for the wild horse and burros would be provided as needed per BLM standards. Water use areas during construction would be of critical concern.

### 2.1.5 Implementation Timeframe

The 3.1-mile Zone 2 Trail could be implemented as one corridor, or in three segments defined by the construction access roads on **Figure 2-2**. Construction access roads would provide intermediate access to the trail from SR-159 between the project termini at the 13-mile Scenic Drive entrance and exit.

Constructing in phases could be beneficial by expediting the schedule and improving landscape restoration by reducing the timeframe for plant salvage and re-planting. Phasing would also create opportunities for some direct transplanting rather than nursery storage. Implementation of the Proposed Action would be responsive to the minimization measures to avoid impacts identified in **Section 2.1.4.4** and mitigation measures identified in **Chapter 4** of this EA.

Key considerations in developing a construction timeframe include:

- The influence of local climate conditions
- Seasonal wildlife sensitivity
- RRCNRCA visitation

**Table 2-3** illustrates the influence of these factors on the scheduling of the typical construction plan sequence: pre-construction, construction, and post-construction activities.

Availability of funding is another factor in developing implementation strategies. Funding is not currently available to construct the Proposed Action.

### 2.1.5.1 Influence of Climate Conditions on Construction Timing

Climatic conditions that would have a direct influence on construction timing include annual precipitation, thunderstorm and flash flooding, and high temperatures in the project area. Data from the National Weather Service for Las Vegas, Nevada report the wettest months are in December through March, and July through August. The highest frequency of thunderstorms and flash flooding also occur in July and August. The hottest months of the year (above 90 degrees) are June through September. As shown on **Table 2-3**, climatic conditions represent both opportunities and constraints to construction timing.

Optimal timing for plant salvage, plant restoration and seeding would be during early spring and fall months. Topsoil replacement would be most successful in the wet months between November through March to improve their likelihood of survival. The greatest potential for timing restrictions due to climatic conditions would be July and August, when there would be the greatest risk of thunderstorms, flash flooding combined with the highest temperatures.

In addition, temperatures above 90 degrees place restrictions on the use of concrete because of the time needed for cement to set-up, per ACI specifications. Approaches to trail installation in summer months would include pouring concrete in early morning hours, when temperatures are below 90 degrees, and using insulated blankets to extend the drying time, in compliance with specifications. Another climate-related constraint would involve construction in wash crossings in July and August, when there would be risk flash flooding.

### 2.1.5.2 Seasonal Wildlife Sensitivity

The migratory bird nesting season is March through August, during which time active nests with eggs or young birds may not be harmed. Migratory Bird Treaty Act compliance would be required during the bird nesting season. The US Fish and Wildlife Service recommends that any land clearing or other surface disturbance associated with the Proposed Action be conducted outside the avian breeding season, or that a protective buffer be delineated to prevent disturbance to any nesting activity (see PEA, Appendix E, US Fish and Wildlife Service October 7, 2008).

The desert tortoise spends up to 95 percent of its life underground and relies on burrows to escape the temperatures of cold winters and hot summers. Tortoises hibernate for up to nine months per year, becoming most active from March to June and September to October (USFWS 2011). The desert tortoise comes out of hibernation sometime during the month of March and returns to hibernation in November depending on temperature. Compliance with the terms and conditions of the US Fish and Wildlife Service Desert Tortoise Biological Opinion would be required for the desert tortoise during the active periods.

Table 2-3. Construction Timing Influences for Zone 2

|                                       |                             | Jan  | Feb  | Mar   | Apr  | May                | Jun                               | Jul  | Aug                               | Sep                                     | Oct  | Nov                            | Dec  |
|---------------------------------------|-----------------------------|--|------|---|------|--------------------|-----------------------------------|--|-----------------------------------|---|------|--------------------------------|------|
| Construction Conditions               |                             |  |      |   |      |                    |                                   |  |                                   |   |      |                                |      |
| Average Precipitation (inches)*       |                             | 0.59   | 0.69 | 0.59  | 0.15 | 0.24               | 0.08                              | 0.44   | 0.45                              | 0.31                                    | 0.24 | 0.31                           | 0.40 |
| Normal High Temperature (Fahrenheit)* |                             | 58   | 62.5 | 70.3  | 78.3 | 88.9               | 98.7                              | 104.2  | 102                               | 94                                      | 80.6 | 66.3                           | 56.6 |
| Average Days of Thunderstorms*        |                             | 0.0  | 0.3  | 0.4   | 0.4  | 0.9                | 1.0                               | 3.9  | 3.9                               | 1.6                                     | 0.6  | 0.2                            | 0.1  |
| Flash Flood Frequency                 |                             | Low to moderate frequency                                    |      |   |      | Moderate frequency |                                   | High frequency                                   |                                   | Low to moderate frequency               |      |                                |      |
| Migratory Bird Nesting                |                             | Non-nesting period   |      | Seasonal nesting period for migratory birds |      |                    |                                   |  |                                   | Non-nesting period                      |      |                                |      |
| Desert tortoise activity              |                             | Underground in burrows                                       |      | Typically active desert tortoise period     |      |                    |                                   | Underground in burrows                           |                                   | Typically active desert tortoise period |      | Underground in burrows         |      |
| Wild Horse and Burros foaling         |                             | Foaling season is not a restriction in the Zone 2 study area |      |   |      |                    |                                   |  |                                   |   |      |                                |      |
| RRCNCA visitor frequency              |                             | Low to moderate visitor period                               |      | High visitor period                         |      |                    | Low to moderate visitor period    |  |                                   | High visitor period                     |      | Low to moderate visitor period |      |
| Influence on Construction Timing      |                             |  |      |   |      |                    |                                   |  |                                   |   |      |                                |      |
| Pre-construction                      | Plant Salvage               |  |      |   |      | Risk of flooding   | Risk of flooding                  | High temperatures and risk of flooding           |                                   |   |      |                                |      |
|                                       | Topsoil Removal             |  |      |   |      |                    |                                   | Risk of thunderstorms and flooding               |                                   |   |      |                                |      |
| Construction                          | Construction at Washes      |  |      |   |      |                    |                                   | Flood risk period                                |                                   |   |      |                                |      |
|                                       | Concrete Trail Installation |  |      |   |      |                    | Possible temperature restrictions | High temperatures and risk of thunderstorms      | Possible temperature restrictions |   |      |                                |      |
|                                       | Earthwork                   |  |      |   |      |                    |                                   | Potential for slope failure during thunderstorms |                                   |   |      |                                |      |

\*National Weather Forecast Office, Las Vegas, Nevada. Las Vegas, Nevada Climate Information

Table 2-3. Construction Timing Influences for Zone 2 (Continued)

|  |                     | Jan  | Feb | Mar  | Apr | May                     | Jun  | Jul                                    | Aug               | Sep                        | Oct                              | Nov  | Dec |
|--|---------------------|--|-----|--|-----|-------------------------|--|--|-------------------|----------------------------|----------------------------------|--|-----|
| Post construction  | Topsoil Replacement |  |     |  |     | Mod - High temperatures | High temperatures  | Risk of thunderstorms and flooding     | High temperatures |                            |                                  |  |     |
|  | Plant Restoration   |  |     |  |     | Mod - High temperatures | High temperatures  | High temperatures and risk of flooding | High temperatures |                            |                                  |  |     |
|  | Seeding             |  |     |  |     | Mod - High temperatures | High temperatures  | High temperatures and risk of flooding | High temperatures |                            |                                  |  |     |
|  | Regrading           |  |     |  |     |                         |  | Risk of thunderstorms and flooding     |                   |                            |                                  |  |     |
| Work-day hour restrictions                                 |                     | None based on weather conditions                 |     |  |     |                         | Possible restrictions to work hours due to high temperatures |  |                   |                            | None based on weather conditions |  |     |
| Construction limitations with MBTA <sup>1</sup> compliance |                     | Non-nesting season                               |     | Migratory Bird Treaty Act compliance would be required during bird the nesting season.   |     |                         |  |  |                   | Non-nesting season         |                                  |  |     |
| Construction limitations due to ESA <sup>2</sup>           |                     | Desert tortoise typically in underground burrows |     | Compliance with terms and conditions of the US Fish & Wildlife Service Desert Tortoise Biological Opinion would be required during the active desert tortoise periods. |     |                         |  |  |                   |                            |                                  | Desert tortoise typically in underground burrows |     |
| Construction Management Coordination                       |                     |  |     | Peak RRCNCA Visitor Period   |     |                         |  |  |                   | Peak RRCNCA Visitor Period |                                  |  |     |

|   |  |
|---|--|
| Construction restrictions and compliance requirements |  |
| Potential construction restrictions                   |  |
| Optimal construction timing                           |  |
| Average conditions                                    |  |

<sup>1</sup> Migratory Bird Treaty Act

<sup>2</sup> Endangered Species Act

### 2.1.5.3 Visitor Use

The most popular period of RRCNCA visitation is from March through May and the month of September. Proposed construction activities would avoid disruption to the Fee Booth Lot and the Vista Lot, and construction management coordination would be planned in a manner that would minimize conflicts with visitor use during construction.

### 2.1.5.4 Work-day Hours

During the high temperature months of June through September, work-day hour scheduling would start early and stop around 10:00 AM, and then commence in the evening.

### 2.1.5.5 Construction Phasing and Duration

The Zone 2 Trail could be implemented for the entire 3.1 miles or in three segments defined by the construction access roads shown in **Figure 2-1**. The influences of the construction timing constraints shown on **Table 2-3** would be common to any implementation strategy for the Proposed Action. The duration of construction may vary, depending on construction approaches.

- **3-phase construction plan approach** – It is estimated that the Proposed Action could be constructed within a timeframe of 1 year, through a multiple 3-phase plan approach. However, there is a likelihood that the construction activities may extend over a year.
- **Single-phase construction plan** – Constructing the entire 3.1-mile alignment at one time would likely take longer than either of the 3-phase approaches described above.
- **Segmented construction approach** – Segments of the trail could also be constructed over a period of time as funding becomes available. This project is not funded for construction at this time, and the trail could be constructed in sections as funding becomes available. One approach would be to construct the segment of the trail between the Visitor Center entrance and the Tortoise Overlook loop.

## 2.2 Scope of Analysis of Proposed Action

There are no connected actions associated with the Proposed Action because the Zone 2 portion of the multi-use trail system has independent utility. It offers recreational value on its own merit even if the other zones are not implemented.

## 2.3 Description of Other Alternatives Analyzed in Detail

This EA analyzes the effects of a Proposed Action and a No Action Alternative, as there are no other reasonable alternatives to this Proposed Action that would substantially differ in design or effect, and still fulfill the purpose and need for the project. **Section 2.4** describes other alternatives considered but eliminated.

### 2.3.1 No Action Alternative

The scope of the No Action Alternative has not changed since the PEA was written. Under the No Action Alternative, no additional trails would be developed. The recreational user would continue to ride on the shoulder of SR-159. The RRCNCA hiker/biker experience would continue to be dominated by traffic noise, exhaust fumes, radiated pavement heat, and fast-moving traffic to get from one node to another. In addition, the trailheads and parking areas in the SR-159 ROW that already exist would continue to be maintained in their present configurations and automobiles parked on the road shoulder would continue to back out into SR-159.

## 2.4 Alternatives Considered but not Analyzed in Detail

The Proposed Action for the PEA is described in Chapter 2. Much of the alignment would be either within the SR-159 NDOT ROW or along previously disturbed unpaved roads near SR-159. The proposed PEA alternative would be a 10-foot-wide concrete trail with two 2-foot concrete shoulders. This alternative was not analyzed in detail, because it would not provide a diverse user experience in an alignment separated from SR-159. The PEA Trail Alignment Alternative was screened from further evaluation because it did not meet the intent to establish a refined alignment that would improve safety and provide a more natural visitor experience a greater distance from the SR-159 ROW. The PEA alternative planning criteria emphasized the use of existing disturbance adjacent to and within the SR-159 ROW, particularly at the wash crossings. In addition, the BLM March 2011 Trail Alignment Alternative was considered but not analyzed in detail for the Zone 2 EA because it presented a more remote alignment with narrowed wash crossings..

## 2.5 Conformance

The RRCNCA Zone 2 EA is in conformance with the *RRCNCA Resource Management Plan and Record of Decision* (ROD) (2005).

The “Roaded Developed” zone description states that recreation activities should be consistent with the natural environment and “may include paved roads and buildings, but the designs should blend with the natural environment” (BLM 2005). As noted in greater detail in the description of the Proposed Action, the proposed trailhead would consolidate unsafe parking occurring in the shoulder of SR-159 to a single vehicular access point facility on existing disturbance.

The Proposed Action would be consistent with Clark County *Comprehensive Plan Parks, Trails, and Open Space Policies* that would support the following trail policies (CCDCP 2010a):

1. Locate recreational trails on public land (easements) along natural washes, flood control facilities, and public utility corridors.
2. Locate trailheads to encourage multiple use and access to public lands.
3. Provide interconnectivity to trails in other municipalities and federal lands where appropriate.

The *Clark County Comprehensive Plan, Federal Lands Report*, Public Recreation Facilities Section suggests that federal, state, and local agencies need to take a regional approach to developing trail systems in Clark County (CCDCP 2010b). In addition, the *RRCNCA Final Business Plan 2010* states that the BLM is coordinating with the City of Las Vegas and Clark County to ensure that the new trail system provides interconnectivity with the city’s urban environment and is compatible with the county’s regional trail plans (BLM 2010b). Connection through the Clark County trail system into the *Las Vegas Valley Trails Plan* (see Figure 1-4 in PEA) would also be consistent with Southern Nevada Public Land Management Act directives.